

Please add the following new claims 21 and 22 as follows:

- 21. Process according to Claim 1, wherein, for the desorption step (e), the temperature is in addition varied to a temperature greater than the LCST of the polymer. --
- 22. Process according to Claim 17, wherein, for the desorption step, the temperature is varied to a temperature greater than the LCST of the polymer. --

REMARKS

Claims 1-22 are pending. This Amendment amends the specification and claims 1, 3, 4, 9-10, 15 and 16 and adds new claims 21 and 22.

The specification has been amended to capitalize Trademarks used throughout the specification. Therefore, the objection should be withdrawn.

The Office Action rejects claims 1, 3, 10, 15 and 16 under 35 U.S.C. §112, second paragraph. Claims 1, 3 and 10 have been amended to delete the phrase "according to a step." Claim 10 has been further amended to recite that the nucleic material consists of a probe or a primer and deletes reference to "(b')." Antecedent basis for the recitation of "hybridization reagent" can be found in claim 10, line 6. In particular, a hybridization reagent comprises the adsorption reagent and the nucleic material consisting of a probe or a primer. Claim 15 has been amended to delete the recitation "water-soluble." The cross-linking agent has antecedent basis in claim 1. Finally, claim 16 has been amended to recite that "the polymer is obtained in the presence of a polymerization initiator comprising....," thereby providing proper antecedent basis. Reconsideration and withdrawal of the rejection of claims 1, 3, 10, 15 and 16 under 35 U.S.C. §112, second paragraph, are respectfully requested.

The Office Action rejects claims 1-20 under 35 U.S.C. §103(a) over Itoh et al., Kausch et al., Kawaguchi et al. and Hoffman et al. Applicants respectfully traverse the rejection.

Itoh discloses a process for isolating various materials including nucleic materials using a homopolymer or copolymer of at least one N-substituted derivative of acrylamide and methacrylamide, with one or more monomers selected from hydrophilic, ionic, and hydrophobic monomers. As discussed on pages 44 and 45 of Itoh, the holding and release of valuable substances, such as nucleic acids, bound by hydrogen bonds and hydrophobic bonds, is effected with ease by controlling the temperature of the homopolymers or copolymers. These compounds are held at high temperatures and released at low temperatures. This is due to the fact that, at high temperatures, the polymers are present in an open structure, which facilitates the absorption of the nucleic acids by the polymer, and, at low temperatures, the polymers are present in a closed or retracted structure, which facilitates the liberation of the nucleic acids in the medium.

In contrast, the present invention is directed to a process for the isolation of nucleic material using a reaction medium having a pH of at most 7, an ionic strength of at most  $10^{-2}\text{M}$  and a temperature less than the LCST of the polymer, which is between 25 and 45°C. This reaction medium provides for the selective isolation of nucleic material. Itoh does not teach or suggest a process utilizing such a reaction medium. In particular, as noted in the Office Action, Itoh does not teach the use of low ionic strength. In addition, as discussed above, Itoh teaches holding the nucleic acid or other valuable material at high temperatures and then releasing them at low temperatures. Thus, it does not teach or suggest utilizing temperatures less than the LCST to capture and hold the nucleic acid.

The secondary references do not overcome the deficiencies of Itoh. In particular, none of the cited references teach or suggest the claimed reaction medium. In addition, although Hoffman teaches increasing the temperature and the ionic force in order to release the entrapped substances, and therefore arguably suggest lower temperatures and ionic force to hold the entrapped substances, it cannot properly be combined with Itoh. In particular,

whereas Hoffman teaches a polymer that releases the entrapped substances by increasing the temperature, Itoh teaches a polymer that releases the entrapped substances by decreasing the temperature. Due to these inconsistent teachings, these references cannot properly be combined to achieve the present invention.

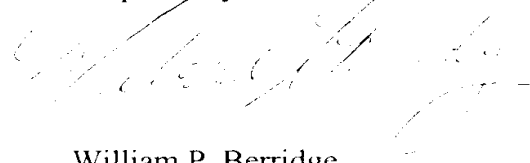
The cited references do not teach or suggest the features of the present invention. Therefore, the rejection under 35 U.S.C. §103 should be reconsidered and withdrawn.

Claims 21 and 22 have been added to further define the invention. Both of these claims recite that, in the desorption step, the temperature is varied to a temperature greater than the LCST of the polymer. These claims are patentable for at least the reasons discussed above. In addition, these claims specifically recite increasing the temperature to desorb the nucleic materials, which is opposite to the teaching of Itoh.

In view of the foregoing amendments and remarks, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Should the Examiner believe that anything further is necessary in order to place the above-identified application in condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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